

REMARKS

Claims 1-55 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Section 103(a) Rejections:

The Office Action rejected claims 1-12, 15, 18-23, 25-36, 41-44 and 46-53 under 35 U.S.C. § 103(a) as being unpatentable over Sun et al. (U.S. Patent 6,442,663) (hereinafter “Sun”) in view of Wollrath et al. (U.S. Patent 5,832,529) (hereinafter “Wollrath”). Applicants respectfully traverse this rejection for at least the following reasons.

Regarding claim 1, contrary to the Examiner’s assertion, **Sun in view of Wollrath does not teach storing a first state of the process executing within the first device to a persistent store and sending the first state of the process from the persistent store to a second device.** A persistent store is different from storing runtime data “in memory.” Sun does not teach storing process state to a persistent store and sending the process state as stored in the persistent store. Sun discusses migration of an executing process. Thus, at most, Sun would suggest migration of process data from the in-memory execution space of the process. **There is no suggestion or reason given in Sun to store the process state to a persistent store and then send the process state from the persistent store.** The Examiner has cited Sun, column 1, line 57 – column 2, line 19 and column 2, lines 60-65 of Sun, and notes that he is interpreting Sun’s use of the term “databases” as inferring a persistent store. The Examiner is misinterpreting the mention of “databases” in Sun. In the portions cited by the Examiner, Sun is not using a database as a part of his migration process, but rather Sun is pointing out the type of resources that might be available on a computer to which a process is migrated. The brief mention of databases in Sun has absolutely nothing to do with how the process state is stored and migrated.

Sun lists several reasons, or applications, of process migrations including migrating processes from overloaded machines, migrating processes to machines with special hardware, or peripherals, migrating processes toward the source of data, and *resource sharing*. Sun then states, “[i]n terms of resource sharing, processes can be migrated to computers that have resources such as databases or peripherals required for computations” (Sun, column 1, line 66-column 2, line 12). Sun is merely stating another situation in which process migration may be useful. In other words, there may be overall benefits to migrating processes (that use databases, for example) to machines on which the database reside. Sun is clearly not inferring that a database is used as a persistent store during process migration.

Applicants submit that the Examiner is making a hindsight attempt to force the inclusion of a persistent store into portions of Sun that the Examiner is relying upon. Sun clearly does not teach or advocate using a database as a persistent store during process migration. Furthermore, the buffer data transfer (BDT) technique discussed later in the Sun reference specifically refers to sending and restoring “live data” as opposed to persisted data. Thus, Sun expressly teaches away from storing a first state of the process executing within the first device to a persistent store and sending the first state of the process from the persistent store to a second device. Applicants remind the Examiner that it is not proper to pick and chose isolated teachings from a reference. Instead, the Examiner must consider the reference as a whole, including parts that teach away. M.P.E.P. § 2141.02, last paragraph; *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Also, Sun fails to teach sending the first state of the process from the persistent store to a second device, as recited in claim 1. The sections of Sun cited by the Examiner mention nothing about sending process state from a persistent store to another device. In fact, Sun clearly refers only to sending information from the run-time memory space.

As the Examiner admits, Sun fails to teach anything regarding leases to resources or about including those leases as part of his process migration process. Applicants also respectfully disagree that it would have obvious to combine Sun process migration with Wollrath's leasing system. Wollrath teaches a process for allocating and deallocating resources in a distributed environment using leases. However, Wollrath does not disclose, nor is Wollrath concerned with, migrating leases from one machine to another. In fact, despite the Examiner's assertion, Wollrath does not teach expiring leases for a process on a first device and establishing those leases on a second device. In contrast, Wollrath teaches only that a process may request and obtain a lease to a shared resource for a certain lease period and the deallocation of that resource once the lease period has expired, (Wollrath, Abstract, column 3, lines 30 –38, lines 46-65). Nowhere does Wollrath mention anything regarding expiring one or more leases for a process on a first device and establishing those leases on a second device, as asserted by the Examiner. Thus, applicants can find no suggestion or motivation in either Sun or Wollrath to combine these teaches, other than through hindsight analysis to "build" the applicants' invention.

Applicants respectfully remind the Examiner that to establish a *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). In addition, the showing of a suggestion, teaching, or motivation to combine prior teachings "must be clear and particular Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence'." *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). The art must fairly teach or suggest to one to make the specific combination as claimed. That one achieves an improved result by making such a combination is no more than hindsight without an initial suggestion to make the combination. The Examiner's statement that "[o]ne of ordinary skill in the art would have been motivated to [combine Sun's process migration to include leasing as

taught by Wollrath] in order to explicitly migrate any leases to services when migrating processes and all their state information” amounts to a broad, conclusory statement intended to combine the prior art teaches to produce the claimed invention.

Moreover, the Examiner’s proposed combination of Sun and Wollrath would not result in a system that included the expiring leases on one device and establishing those leases on a different device as part of process migration. Even for platforms that use leases, a lease would not necessarily be required for future execution of a process after migration. Additionally, even for platforms that use leases, the lease information is typically not considered part of the process state and therefore would not migrated with the process in the prior art. Even if leases were used, those leases would not necessarily have to be expired on the first device and then established on the second device in order to migrate a process using those leases. For example, as part of process migration, information allowing a newly migrated process to continue using previously leased resources could be transferred as part of process migration, without expiring the leases themselves.

Thus, the rejection is unsupported by the teachings of the prior art. Similar arguments apply in regard to independent claims 25 and 47.

In regard to claim 2, contrary to the Examiner’s assertion, **Sun in view of Wollrath does not teach stopping the process execution on the second device, selecting a previous state of the process executing within the first device from the persistent store, and reconstituting the selected previous state of the process on the first device.** The sections of Sun cited by the Examiner only discuss migrating a process from one machine to another. They mention nothing about being able to resume the process back on the first machine and reconstitute a selected previous state of the process back on the first machine.

Regarding claim 4, contrary to the Examiner’s assertion, Sun in view of Wollrath fails to teach wherein the first state of the process comprises data describing the one or

more leases to services for the process on the first device, wherein the data describing the one or more leases is used in said establishing the one or more leases to services for the process on the second device. The Examiner refers to the general statement in Sun at col. 2, lines 62-65 that “all data necessary for future execution of the process has to be collected and then restored in the data segment of the new process on another machine.” However, the specific features noted above are clearly not inherent in this general statement at col. 2, lines 62-65, of Sun. The Examiner is presumably also relying upon Wollrath without actually citing any particular passage. Applicants note however that Wollrath also fails to disclose storing data describing one or more leases to persistent store either alone or as part of storing a first state of a process. Thus, neither Sun nor Wollrath, either singly or in combination, mentions anything regarding the first state of the process comprising data describing the one or more leases to services for the process on the first device, wherein the data describing the one or more leases is used in said establishing the one or more leases to services for the process on the second device.

Therefore, the rejection of claim 4 is not supported by the prior art and removal thereof is respectfully requested. Similar remarks apply in regard to claims 5, 6, 7, 28, 29, 30, 31, 49, 50, 51, and 52.

Regarding claim 15, Sun in view of Wollrath fails to teach wherein the storing the first state of the process on the first device to the persistent store, the sending the first state of the process from the persistent store to the second device and said receiving the first state of the process on the second device are performed as elements of an atomic transaction. The Examiner cites a general statement in Sun about “all data necessary for future execution of the process has to be collected and then restored” (Sun, column 2, lines 62-65). However, Sun does not teach that the migration process is performed as an atomic transaction. Furthermore, neither Sun nor Wollrath, either singly or in combination, teaches rolling back the atomic transaction if one or more of the elements of the atomic transaction fail. The Examiner has merely relied upon Sun’s general statement at column 2, lines 62-63 that “all data necessary for future execution of the process has to be collected and then restored.” However, nothing in Sun or Wollrath

describes rolling back an atomic transaction if one or more of the elements of the atomic transaction fail. The Examiner has merely inserted the limitations from Applicants' claim 15 into Sun's system without any teaching or suggestion in Sun regarding those limitations. Thus, the Examiner has clearly failed to establish a *prima facie* obviousness rejection regarding claim 15 and removal thereof is respectfully requested.

In regard to claim 18, Sun does not teach wherein the *persistent store is on a server external* to the first device and the second device. The portions of Sun cited by the Examiner make no mention at all of such a persistent store on a server external to the devices on which the process is being migrated. Sun specifically teaches transmitting an encoded information stream, including the data structures of a migrating process, to a new process *on the destination machine* (Sun, column 7, lines 44-56). Thus, the rejection of claim 18 is not supported by the prior art and removal thereof is respectfully requested.

The Office Action rejected claims 13, 14, 16, 17, 24, 37-40, 45, 54 and 55 under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of Cejtin et al. (U.S. Patent 5,745,703) (hereinafter "Cejtin"). Applicants assume that the Examiner intended to include Wollrath in the 103(a) rejection of claims 13, 14, 16, 17, 24, 37-40, 45, 54 and 55 as they each depend from an independent claim for which the Examiner relies upon Wollrath in his rejection. Applicants respectfully traverse this rejection in light of the following remarks.

Regarding claim 13, Cejtin fails to disclose wherein the first device comprises a first in-memory heap for caching pages for use by the process; wherein the pages comprises code and data for the process; wherein the persistent store comprises a first virtual heap for storing pages flushed from the first in-memory heap. The portions of Cejtin cited by the Examiner describe process migration generally, but fail to mention anything regarding an in-memory heap for caching pages for use by the process and also fail to disclose wherein a persistent store comprises a virtual heap for storing pages flushed from the in-memory heap.

Nor does Cejtin teach storing one or more pages from the first in-memory heap to the first virtual heap in the persistent store and sending a copy of the first virtual heap from the persistent store to the second device. Note that the virtual machines shown in Fig. 19 of Cejtin having nothing to do with a virtual heap as recited in claim 13. Just because a process runs in a virtual machine does not imply the use of a virtual heap as recited in claim 13. Similar arguments apply for claims 37 and 54.

Furthermore, there is no suggestion that the process migration described in Sun would be applicable to processes running in Java Virtual Machines as in Cejtin. Sun pertains to migrating processes between different environments, whereas Cejtin employs message passing between JVMs that share an address space. The techniques of the two references are unrelated and there does not appear to be any reason to apply the teachings of one to the other. In fact, Sun specifically teaches away from using a Java Virtual Machine. At col. 2, lines 57-59, when referring to Java running on a virtual machine, Sun states that “these languages are less powerful, slow, and require rewrites of existing software.” References that teach away cannot serve to create a prima facie case of obviousness. *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1131, 1132 (Fed. Cir. 1994). It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 218 USPQ 769, 779 (Fed. Cir. 1983). The combination of Sun and Cejtin is improper since Sun specifically teaches away from using a Java Virtual Machine.

Applicant also asserts that numerous ones of the dependent claims recited further distinctions over the cited art. However, since the independent claims have been shown to be patentably distinct, a further discussion of the dependent claims is not necessary at this time.

CONCLUSION

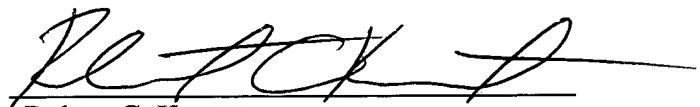
Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested.

If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above referenced application from becoming abandoned, Applicants hereby petition for such extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-46400/RCK.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Fee Authorization Form authorizing a deposit account debit in the amount of \$
for fees ().
- ☐ Other:

Respectfully submitted,



Robert C. Kowert
Reg. No. 39,255
ATTORNEY FOR APPLICANT(S)

Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
Phone: (512) 853-8850

Date: October 14, 2004